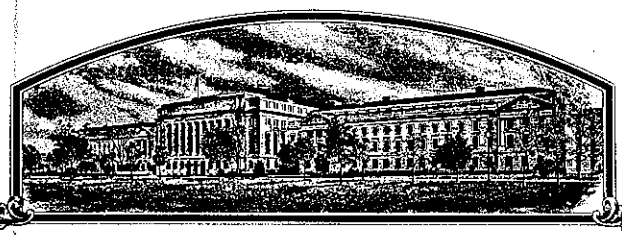
No. 8900176



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pioneer Hi-Bred International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT ETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT T. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'9411'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D. C. *this* 30th *day of* August *in the year of our Lord one thousand nine hundred and* ninety-one.

Attest:

Kenneth A. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Ed Madigan
Secretary of Agriculture

APPROVAL EXPIRES 2-28-88

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)
Pioneer Hi-Bred International, Inc.

2. TEMPORARY DESIGNATION

3. VARIETY NAME
9411

4. ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*
700 Capital Square
400 Locust Street
Des Moines, IA 50309

5. PHONE *(Include area code)*
319-234-0335

FOR OFFICIAL USE ONLY

PVPO NUMBER
8900176

6. GENUS AND SPECIES NAME
Glycine Max

7. FAMILY NAME *(Botanical)*
Leguminosae

FILING
DATE Apr. 17, 1989
TIME
☐ A.M. ☐ P.M.

8. KIND NAME
Soybean

9. DATE OF DETERMINATION
October, 1982
January, 1987(increase

FEES RECEIVED
AMOUNT FOR FILING
$ 1800 00
DATE Apr. 17, 1989
AMOUNT FOR CERTIFICATE
$ 200 00
DATE Aug 13 1991

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Iowa

12. DATE OF INCORPORATION
1926

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

~~Clark W. Jennings~~ John Grace
~~3261 West Airline Highway~~ 7301 NW 62nd Ave.
~~Waterloo, IA 50703-9610~~ P.O. Box 85
Johnston IA 50131-0085

Mary Helen Mitchell (copy)
700 Capital Square - 400 Locust Street
Des Moines, IA 50309

PHONE *(Include area code)*:

18 July 1991

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. ☒ Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
b. ☒ Exhibit B, Novelty Statement.
c. ☒ Exhibit C, Objective Description of Variety *(Request form from Plant Variety Protection Office.)*
d. ☐ Exhibit D, Additional Description of Variety.
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)*
☐ Yes *(If "Yes," answer items 16 and 17 below)* ☒ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ Yes ☒ No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ Foundation ☐ Registered ☐ Certified

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ Yes *(If "Yes," give date)*
☒ No

19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
☐ Yes *(If "Yes," give names of countries and dates)*
☒ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT
Clark Jennings
DATE
April 6, 1989

SIGNATURE OF APPLICANT
DATE

FORM LS-470
(3-86)

Edition of 7-84 obsolete.

8900176

Attachment: **9411 Soybean** (April, 1989)

Exhibit A: Variety **9411** evolved from a cross of varieties (Williams 79 x A3127) X A3127. It is an F5-derived variety which was advanced to the F5 generation by modified single-seed descent. The F6 progeny row of **9411** was grown in Ohio during the summer of 1982. Subsequently, **9411** has undergone six years of extensive testing and purification and has been observed by the breeder to be uniform and stable for all plant traits from generation to generation, with no evidence of variants.

0.6 acres of **9411** (breeder's seed) were grown in 1987. 19 acres of parent seedstock (foundation seed equivalent) were grown in 1988.

Exhibit B: Variety **9411** is most similar to variety 9391. However, **9411** is significantly later maturing than 9391 (see Table 1.)

Exhibit E: Pioneer Hi-Bred International, Inc. is the sole, original, and first breeder of soybean variety **9411**, for which it solicits a certificate of protection.

FORM APPROVED: OMB NO. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (Glycine max L.*)*

NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
Pioneer Hi-Bred International, Inc.		9411

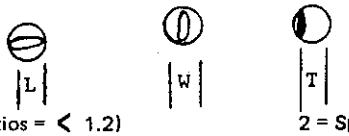
ADDRESS *(Street and No., or R.F.D. No., City, State, and Zip Code)*
Capital Square
400 Locust Street
Des Moines, IA 50309

FOR OFFICIAL USE ONLY
PVPO NUMBER
8900176

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g., [0][9]).

1. SEED SHAPE:

[2]



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)
2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)
3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)
4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

2. SEED COAT COLOR: (Mature Seed)

[1] 1 = Yellow 2 = Green 3 = Brown 4 = Black 5 = Other *(Specify)* _____

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

[2] 1 = Dull ('Corsoy 79'; 'Braxton') 2 = Shiny ('Nebsoy'; 'Gasoy 17')

4. SEED SIZE: (Mature Seed)

[1][5] Grams per 100 seeds

5. HILUM COLOR: (Mature Seed)

[6] 1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black 6 = Black 7 = Other *(Specify)* _____

6. COTYLEDON COLOR: (Mature Seed)

[1] 1 = Yellow 2 = Green

7. SEED PROTEIN PEROXIDASE ACTIVITY:

[2] 1 = Low 2 = High

8. SEED PROTEIN ELECTROPHORETIC BAND:

[ ] 1 = Type A ($SP1^a$) 2 = Type B ($SP1^b$)

9. HYPOCOTYL COLOR:

[3] 1 = Green only ('Evans'; 'Davis') 2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')
3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')
4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

10. LEAFLET SHAPE:

[2] 1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other *(Specify)* _____

11. LEAFLET SIZE:

[2] 1 = Small ('Amsoy 71'; 'A5312') 2 = Medium ('Corsoy 79'; 'Gasoy 17')
3 = Large ('Crawford'; 'Tracy')

12. LEAF COLOR:

[2] 1 = Light Green ('Weber'; 'York') 2 = Medium Green ('Corsoy 79'; 'Braxton')
3 = Dark Green ('Gnome'; 'Tracy')

13. FLOWER COLOR:

[2] 1 = White 2 = Purple 3 = White with purple throat

14. POD COLOR:

[1] 1 = Tan 2 = Brown 3 = Black

15. PLANT PUBESCENCE COLOR:

[2] 1 = Gray 2 = Brown (Tawny)

16. PLANT TYPES:

[2] 1 = Slender ('Essex'; 'Amsoy 71') 2 = Intermediate ('Amcor'; 'Braxton')
3 = Bushy ('Gnome'; 'Govan')

17. PLANT HABIT:

[3] 1 = Determinate ('Gnome'; 'Braxton') 2 = Semi-Determinate ('Will')
3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

18. MATURITY GROUP:

[0][7] 1 = 000 2 = 00 3 = 0 4 = I 5 = II 6 = III 7 = IV 8 = V
9 = VI 10 = VII 11 = VIII 12 = IX 13 = X

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

BACTERIAL DISEASES:

[0] Bacterial Pustule *(Xanthomonas phaseoli* var. *sojensis)*

[0] Bacterial Blight *(Pseudomonas glycinea)*

[0] Wildfire *(Pseudomonas tabaci)*

FUNGAL DISEASES:

[0] Brown Spot *(Septoria glycines)*

Frogeye Leaf Spot *(Cercospora sojina)*

[0] Race 1 [ ] Race 2 [ ] Race 3 [ ] Race 4 [ ] Race 5 [ ] Other *(Specify)* _____

[0] Target Spot *(Corynespora cassiicola)*

[0] Downy Mildew *(Peronospora trifoliorum* var. *manshurica)*

[0] Powdery Mildew *(Microsphaera diffusa)*

[0] Brown Stem Rot *(Cephalosporium gregatum)*

[0] Stem Canker *(Diaporthe phaseolorum* var. *caulivora)*

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

[0] Pod and Stem Blight *(Diaporthe phaseolorum* var; *sojae)*

[0] Purple Seed Stain *(Cercospora kikuchii)*

[0] Rhizoctonia Root Rot *(Rhizoctonia solani)*

Phytophthora Rot *(Phytophthora megasperma* var. *sojae)*

[2] Race 1 [2] Race 2 [2] Race 3 [1] Race 4 [1] Race 5 [2] Race 6 [2] Race 7

[2] Race 8 [2] Race 9 [2] Other *(Specify)* 10,11,13,15,17,21,23,24

VIRAL DISEASES:

[0] Bud Blight (Tobacco Ringspot Virus)

[0] Yellow Mosaic (Bean Yellow Mosaic Virus)

[0] Cowpea Mosaic (Cowpea Chlorotic Virus)

[0] Pod Mottle (Bean Pod Mottle Virus)

[0] Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

Soybean Cyst Nematode *(Heterodera glycines)*

[1] Race 1 [1] Race 2 [1] Race 3 [1] Race 4 [ ] Other *(Specify)*

[0] Lance Nematode *(Hoplolaimus Colombus)*

[0] Southern Root Knot Nematode *(Meloidogyne incognita)*

[0] Northern Root Knot Nematode *(Meloidogyne Hapla)*

[0] Peanut Root Knot Nematode *(Meloidogyne arenaria)*

[0] Reniform Nematode *(Rotylenchulus reniformis)*

[ ] OTHER DISEASE NOT ON FORM *(Specify):*

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

[0] Iron Chlorosis on Calcareous Soil

[ ] Other *(Specify)*

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

[0] Mexican Bean Beetle *(Epilachna varivestis)*

[0] Potato Leaf Hopper *(Empoasca fabae)*

[ ] Other *(Specify)*

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	9391	Seed Coat Luster	9441
Leaf Shape	9391	Seed Size	9391
Leaf Color	9391	Seed Shape	9391
Leaf Size	9391	Seedling Pigmentation	9391

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/ POD
				CM Width	CM Length	% Protein	% Oil		
9411 Submitted	128.0	2.0	98.9			43.2	21.0	15.0	
9391 Name of Similar Variety	126.0	2.0	98.6			41.0	20.7	15.0	

PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A_2 in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

8900176

PIONEER HI-BRED INTERNATIONAL, INC.
PLANT BREEDING DIVISION

DEPARTMENT OF SELF-POLLINATED CROPS
7301 NW 62ND AVENUE • P.O. BOX 85
JOHNSTON, IOWA 50131-0085
PHONE: (515) 270-3300
TELEFAX: (515) 253-2125

June 21, 1991

Jeffrey L. Strachan, Examiner
Plant Variety Protection Office
U.S. Department of Agriculture
Room 500, NAL Building
10301 Baltimore Boulevard
Beltsville, MD 20705

Subject: Soybean Application No. 8900176, '9411'

Dear Mr. Strachan:

Enclosed is an amended Exhibit B and relevant tables which provide evidence of novelty for variety '9411'. Comparisons are made against varieties '8628SE', '9331', '9391', 'CX326', 'CX366', and 'RA-501A'.

Variety '8628SE' has light tawny pubescence, whereas '9411' has the normal tawny pubescence. In addition, Dr. Garland (Research Director for Callahan Enterprises, Inc.) indicates the original PVP application shows '8628SE' has no specific resistance to Phytophthora. Variety '9411' has specific resistance to races 1-3 and 6-10 of Phytophthora.

Variety '9331' is an early to mid Group III, whereas '9411' is an early Group IV. Therefore, they are not tested together. However, data from 1989 was selected such that '9331', '9391' and '9411' were grown in the same locations, with '9331' and '9391' in one experiment at those locations and '9391' and '9411' in a different experiment. The data presented in Table 1 shows '9331' is 5 days earlier than '9391' at these selected locations. The probability of a greater t occurring by chance is less than 0.001. Data presented in Table 2 also shows '9391' is 2.3 days earlier than '9411'. The probability of a greater t occurring by chance is less than 0.05. Therefore, '9331' must be significantly earlier than '9441'.

Variety 'CX326' is 4.5 days earlier than '9411', based upon Table 3. The probability of a greater t occurring by chance is less than 0.001.

Variety 'CX366' and '9411' were not tested together. However, data from 1988 was selected such that 'CX366', '9391', and '9411' were grown in the same locations with 'CX366' and '9391' in one experiment at those locations, and '9391' and '9411' in a different experiment. Table 4 shows 'CX366' is 2.9 days earlier than '9391'. The probability of a greater t occurring by chance

is less than 0.001. Data presented in Table 5 shows '9391' is 2.7 days earlier than '9411'. The probability of a greater t occurring by chance is less than 0.01. Therefore, 'CX366' must be significantly earlier than '9411'.

Variety 'RA-501A' is a Group V variety. As such, it is at least 10 days later than '9411'. Further, 'RA-501A' has specific resistance to Soybean Cyst Nematode race 3, whereas '9411' does not.

Finally, you had requested yearly breakouts of the comparison between '9391' and '9411'. While the data in Tables 2 and 5 (1989 and 1988 respectively) represents a subset of the information currently available, in the interest of brevity, I trust the significant differences found in these tables will suffice.

I hope the enclosed information is sufficient to allow you to issue a PVP Certificate on '9411'.

Sincerely,

John Grace

John Grace
Assistant Project Manager

/sc
Encl.

cc: Mary Helen Mitchell
Jim Miller

Table 1. Variety 9331 (X1) vs '9391' (X2) for maturity in days.

All observations are from plots planted using a randomized complete block design. Planted plot length was 21 feet, trimmed to 15 feet. Plot width was 4 30 inch rows, or 10 feet. Maturity was scored as the number of days from planting until 95% of the pods in the plot were mature. Data is presented for 1989. In our best scientific judgement this data results from plots treated in a statistically sound manner and as such, the use of the t test is completely valid.

REP	X1	X2	X1-X2	(X1-X2)2
1	130	140	-10	100
2	133	139	-6	36
3	117	121	-4	16
4	118	120	-2	4
5	122	128	-6	36
6	121	126	-5	25
7	127	131	-4	16
8	128	131	-3	9
sum	996	1036	-40	242
ave	124.5	129.5	-5	

SD**2=	0.75
SD=	0.86603
t=	-5.7735 ***
DF=	7
n=	8

ave days to maturity for 9331 = 124.5
ave days to maturity for 9391 = 129.5

***t value required for significance at 0.1% level = 5.405, therefore probability of this t value occuring by chance < 0.001.

Table 2. Variety 9391 (X1) vs '9411' (X2) for maturity in days (1989).

All observations are from plots planted using a randomized complete block design. Planted plot length was 21 feet, trimmed to 15 feet. Plot width was 4 30 inch rows, or 10 feet. Maturity was scored as the number of days from planting until 95% of the pods in the plot were mature. Data is presented for 1989. In our best scientific judgement this data results from plots treated in a statistically sound manner and as such, the use of the t test is completely valid.

REP	X1	X2	X1-X2	(X1-X2)2		
1	137	139	-2	4	SD**2=	0.74777
2	136	144	-8	64	SD=	0.86474
3	121	122	-1	1	t=	-2.7465 *
4	122	122	0	0	DF=	7
5	123	126	-3	9		
6	124	126	-2	4	n=	8
7	131	133	-2	4		
8	132	133	-1	1		
sum	1026	1045	-19	87	ave days to maturity for 9391 = 128.3	
ave	128.3	130.6	-2.38		ave days to maturity for 9411 = 130.6	
	128.3					

*t value required for significance at 5% level = 2.365, therefore probability of this t value occuring by chance < 0.05.

8900176

Table 3. Variety CX326 (X1) vs '9411' (X2) for maturity in days.

All observations are from plots planted using a randomized complete block design. Planted plot length was 21 feet, trimmed to 15 feet. Plot width was 2 30 inch rows, or 5 feet. Maturity was scored as the number of days from planting until 95% of the pods in the plot were mature. Data is presented for 1988. In our best scientific judgement this data results from plots treated in a statistically sound manner and as such, the use of the t test is completely valid.

REP	X1	X2	X1-X2	(X1-X2)2
1	127	132	-5	25
2	126	131	-5	25
3	127	133	-6	36
4	128	135	-7	49
5	128	136	-8	64
6	131	134	-3	9
7	127	133	-6	36
8	129	135	-6	36
9	125	129	-4	16
10	124	126	-2	4
11	125	128	-3	9
12	126	131	-5	25
13	126	128	-2	4
14	124	129	-5	25
15	125	128	-3	9
16	125	127	-2	4
sum	2023	2095	-72	376
ave	126.4	130.9	-4.5	

SD**2=	0.21667	
SD=	0.46547	
t=	-9.6676	***
DF=	15	
n=	16	

ave days to maturity for CX326 = 126.4
ave days to maturity for 9411 = 130.9

***t value required for significance at 0.1% level = 4.073, therefore probability of this t value occuring by chance < 0.001.

Table 4. Variety CX 366 (X1) vs '9391' (X2) for maturity in days (1988).

All observations are from plots planted using a randomized complete block design. Planted plot length was 21 feet, trimmed to 15 feet. Plot width was 4 30 inch rows, or 10 feet. Maturity was scored as the number of days from planting until 95% of the pods in the plot were mature. Data is presented for 1988. In our best scientific judgement this data results from plots treated in a statistically sound manner and as such, the use of the t test is completely valid.

REP	X1	X2	X1-X2	(X1-X2)2			
1	127	130	-3	9	SD**2=	0.25444	
2	127	127	0	0	SD=	0.50442	
3	131	133	-2	4	t=	-5.7491	***
4	120	126	-6	36	DF=	9	
5	122	126	-4	16			
6	137	141	-4	16	n=	10	
7	136	139	-3	9			
8	105	108	-3	9			
9	106	108	-2	4			
10	106	108	-2	4			
sum	1217	1246	-29	107	ave days to maturity for CX 366 = 121.7		
ave	121.7	124.6	-2.9		ave days to maturity for 9391 = 124.6		

***t value required for significance at 0.1% level = 4.781, therefore probability of this t value occuring by chance < 0.001.

Table 5. Variety 9391 (X1) vs '9411' (X2) for maturity in days (1988).

All observations are from plots planted using a randomized complete block design. Planted plot length was 21 feet, trimmed to 15 feet. Plot width was 4 30 inch rows, or 10 feet. Maturity was scored as the number of days from planting until 95% of the pods in the plot were mature. Data is presented for 1988. In our best scientific judgement this data results from plots treated in a statistically sound manner and as such, the use of the t test is completely valid.

REP	X1	X2	X1-X2	(X1-X2)2
1	126	127	-1	1
2	129	129	0	0
3	134	139	-5	25
4	136	141	-5	25
5	136	144	-8	64
6	129	130	-1	1
7	127	129	-2	4
8	124	125	-1	1
9	124	126	-2	4
10	124	126	-2	4
sum	1289	1316	-27	129
ave	128.9	131.6	-2.7	

SD**2= 0.62333
SD= 0.78951
t= -3.4198 **
DF= 9

n= 10

ave days to maturity for 9391 = 128.9
ave days to maturity for 9411 = 131.6

**t value required for significance at 1% level = 3.250, therefore probability of this t value occuring by chance < 0.01.